

Application No. 10/565,598  
Amendment dated May 24, 2010  
Reply to Office Action of February 3, 2010

AMENDMENTS TO CLAIMS:

1. (Currently amended) A device for controlling electromagnetic radiation emitted by a structure, the device having a first surface and a second reactive surface defining a cavity therebetween, the first surface is an equipotential surface ~~and presents a capacitive surface impedance~~, and the second reactive surface presents a capacitive surface impedance and is comprised of ~~comprises~~ a lattice array of conductors disposed on a dielectric surface such that the displacement between a conductor and any other conductor adjacent to it is small compared to the wavelength of the electromagnetic radiation thereby causing the array of conductors to represent an effectively continuous conductive surface to the electromagnetic radiation such that the displacement between a conductor and any other conductor is no more than 1/10 of the wavelength of the electromagnetic radiation, wherein a surface impedance of the second reactive surface is reactive;

an emitter generating electromagnetic radiation between the first surface and the second reactive surface, wherein the electromagnetic radiation within the cavity is radiated into the air through the second reactive surface.

2. (Previously presented) A device according to claim 1, wherein the dielectric surface is planar.

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3. (Previously presented) A device according to claim 1, wherein the electromagnetic radiation has more than one wavelength.
4. (Previously presented) A device according to claim 1, wherein the electromagnetic radiation has more than one polarization.
- 5-6. (Canceled)
7. (Previously presented) A device according to claim 1, wherein the surface impedance of the second reactive surface is capacitive in some regions of the dielectric surface and inductive in the remaining regions of the dielectric surface.
8. (Previously presented) A device according to claim 1, wherein the magnitude of the surface impedance of the second reactive surface varies at different positions on the dielectric surface.
9. (Previously presented) A device according to claim 1, wherein the conductors of the second reactive surface are substantially periodically disposed with respect to each other on the dielectric surface.
- 10-22. (Canceled)

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23. (Previously presented) A device according to claim 1, wherein the cavity is formed using a printed circuit board substrate with the second reactive surface being printed on a top layer of the substrate and plated through holes connecting a top layer to a bottom layer which forms the first surface as an opposite boundary, the plated through holes thereby forming sides of the cavity.

24. (Previously presented) A device according to claim 23, wherein the emitter is printed on an inner layer of the substrate.

25. (Canceled)